

**REMARKS**

At the outset, the Examiner is thanked for the thorough review and consideration of the subject application. The Non-Final Office Action of August 28, 2003 has been received and its contents carefully reviewed.

By this amendment, Applicants hereby amend claims 1 and 3-10, add new claims 11-18, and respectfully submit no new matter has been entered.

In the Office Action dated August 28, 2003, the Examiner objected to the drawings under 37 CFR 1.83(a); rejected claims 2 and 6 under 35 U.S.C. § 112, first paragraph, because the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make LED lamps or chips that cover a luminescent area over 100°; rejected claims 1 and 5 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention; rejected claims 1 and 5 under 35 U.S.C. § 102(e) as being anticipated by Mochizuki (U.S. Pat. No. 6,386,720); rejected claims 3, 4, 7, and 8 under 35 U.S.C. § 103(a) as being unpatentable over Mochizuki; rejected claims 2 and 6 under 35 U.S.C. § 103(a) as being unpatentable over Meggs et al. (U.S. Pat. No. 4,521,835); rejected claims 1 and 5 under 35 U.S.C. § 103(a) as being unpatentable over Tokunaga et al. (U.S. Pat. No. 5,375,043) in view of the related art shown in Figures 1 and 2; rejected claims 9 and 10 rejected under 35 U.S.C. § 103(a) as being unpatentable over Stinson (U.S. Pat. No. 4,499,704). These objections and rejections are traversed and reconsideration of the claims is respectfully requested in view of the amendments above and in view of the following remarks.

The objection to the drawings under 37 CFR § 1.83(a) is respectfully traversed and reconsideration is requested.

In objecting to the drawings the Examiner stated that “a plurality of lamps, each of the lamps / chips has a luminescent area over 100 degrees must be shown or the feature(s) canceled from the claim(s).”

According to M.P.E.P. § 2125, the drawings must be evaluated for what they reasonably disclose and suggest to one of ordinary skill in the art. Moreover, when the specification does not disclose that the drawings are to scale arguments based on measurement of the drawing figures are of little value. Applicant respectfully directs the Examiner to Figures 4A and 4B where the luminescent area of the lamps / chips is shown. In view of both the specification and the drawings, Applicant respectfully submits one of ordinary skill in the art would recognize that the claim element “...each of the lamps / chips has a luminescent area over 100 degrees” has been adequately shown in the Figures.

The rejection of claims 2 and 6 under 35 U.S.C. § 112, first paragraph, because the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make LED lamps or chips that cover a luminescent area over 100° is respectfully traversed and reconsideration is requested.

In rejecting claims 2 and 6, the Examiner stated that the specification was enabling “for the LED lamp or chip according to the present invention covers a luminescent area over 100 degrees (page 8, line 0045), does not reasonably provide enablement for “each of the lamps/chips has a luminescent area over 100 degrees.” The Examiner further states “[t]he specification is not enabling because there is no support behind the LED lamp or chip being able to cover 100 degrees of luminescent area” and concludes “[o]ne of ordinary skill in the art would have recognized that there are many variables to control or produce a desired output (solid angle) of the LED, including, shape of the reflector support, refracting cover ... etc.” The Examiner then summarizes by stating “[t]he specification does not provide a how

the LED is capable of covering over 100 degrees of luminescent area and one in ordinary skill in the art would not reasonably apprised of the scope of the invention.”

According to M.P.E.P. § 2164.04, in order to make a rejection under 112 U.S.C. § 112, first paragraph, the examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention. A specification disclosure which contains a teaching of the manner and process of making and using an invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in compliance with the enablement requirement of 35 U.S.C. 112, first paragraph, unless there is a reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support. A reasonable basis to question enablement is established only when the Examiner provides a reasonable explanation as to why the scope of protection provided by a claim is not adequately enabled by the disclosure.

A proper finding of lack of enablement can be done by making specific findings of fact, supported by evidence, and then drawing conclusions based on these findings of fact. For example, if doubt arises about enablement because information is missing about an essential part which one skilled in the art could not develop without undue experimentation, the Examiner should specifically identify what information is missing and why one skilled in the art could not supply the information without undue experimentation. See M.P.E.P. § 2164.06(a).

In the present rejection, the Examiner specifically noted that the specification failed to provide how an LED is capable of covering over 100 degrees of luminescent area.

Applicant respectfully submits, however, the Examiner failed to provide any explanation as to why one skill in the art could not determine how an LED is capable of

covering over 100 degrees of luminescent area without undue experimentation, as set forth in M.P.E.P. § 2164.06(a). Alleging a supportive deficiency in the specification satisfies only the first of two requirements necessary to establish a *prima facie* case of lack of enablement. The second of the two requirements necessary to establish a *prima facie* case of lack of enablement (i.e., a reason as to why one skilled in the art could not supply the missing information without undue experimentation), however, has not been, and cannot be, established merely by stating “...there are many variables to control or produce a desired output (solid angle) of the LED...”. According to M.P.E.P. § 2164.06, the test for undue experimentation is not merely quantitative, since a considerable amount of experimentation is permissible if the specification provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed.

Given the Examiner’s statement that “[o]ne of ordinary skill in the art would have recognized that there are many variables to control or produce a desired output (solid angle) of the LED, including shape of the reflector support, refracting cover, etc.,” Applicant respectfully submits one of ordinary skill in the art would be reasonably apprised of how to provide LEDs having a luminescent area of over 100° without undue experimentation.

Accordingly, Applicant respectfully submits the present application is in full compliance with 35 U.S.C. § 112, first paragraph.

The rejection of claims 1 and 5 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is respectfully traversed and reconsideration is requested.

The Examiner stated claims 1 and 5 were incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. More specifically, the Examiner stated the “claim language

‘following a field sequence’ [was] incomplete for omitting structural cooperative relationship of elements of a reflection plate, a diffusion plate, a backlight unit, and LCD.”

By the present amendment, Applicant respectfully submits the rejection of claims 1 and 5 under 35 U.S.C. § 112, second paragraph, is hereby rendered moot.

The rejection of claims 1 and 5 under 35 U.S.C. § 102(e) as being anticipated by Mochizuki is respectfully traversed and reconsideration is requested.

Claim 1 is allowable over the cited references in that claim 1 recites a combination of elements including, for example, “A backlight unit in a field sequence liquid crystal display including a reflection plate, …a diffusion plate, …wherein a plurality of lamps are arranged such that LED chips realizing R, G, and B colors are built in the respective lamps.” The cited references including Mochizuki, either singly or in combination, do not teach or suggest at least these features of the claimed invention. Accordingly, Applicant respectfully submits that claim 1 and claims 2-4, 11, and 12, which depend from claim 1, are allowable over the cited references.

Claim 5 is allowable over the cited references in that claim 5 recites a combination of elements including, for example, “A backlight unit in a field sequence liquid crystal display including a reflection plate, …a diffusion plate, …wherein a plurality of unit chips are arranged such that LED chips realizing R, G, and B colors are built in the respective unit chips.” The cited references including Mochizuki, either singly or in combination, do not teach or suggest at least these features of the claimed invention. Accordingly, Applicant respectfully submits that claim 5 and claims 6-8, 13, and 14, which depend from claim 5, are allowable over the cited references.

The Examiner cites Mochizuki as disclosing “… a reflection plate (4), and a diffusion plate (160), the backlight unit using LED as a backlight lamp… wherein a plurality of lamps

[or chips] are arranged such that LED chips realizing R, G, and B colors are built in the respective lamps [or chips] (figures 9A-9C & applicant's [related art shown in] figure 2)." The Examiner also states "plate is defined as a smooth, flat, relatively thin, rigid body of uniform thickness."

Preliminarily, it is noted that claims 1 and 5 were rejected under 35 U.S.C. § 102(e) as being anticipated by Mochizuki. However, the Examiner cites the related art shown in Figure 2 within the body of the rejection. Accordingly, Applicant respectfully requests withdrawal of the rejection of claims 1 and 5 under 35 U.S.C. § 102(e) as being anticipated by Mochizuki.

Moreover, even if the rejection of claims 1 and 5 under 35 U.S.C. § 102(e) as being anticipated by Mochizuki is not withdrawn, and assuming *arguendo* that a plate "is defined as a smooth, flat, relatively thin, rigid body of uniform thickness," as asserted by the Examiner, Applicant respectfully submits the "reflection plate (4)" of Mochizuki is not a "plate" at all. For example, column 3, lines 54-59, Mochizuki states "In FIG. 2, the reference numeral 4 designates a concave mirror having a cylindrical reflecting surface..." Accordingly, Applicant respectfully submits Mochizuki fails to teach, either inherently or explicitly, at least the aforementioned combination of elements of the present invention.

The rejection of claims 3, 4, 7, and 8 under 35 U.S.C. § 103(a) as being unpatentable over Mochizuki is respectfully traversed and reconsideration is requested.

Applicant respectfully submits claims 3 and 4 include all of the limitations of claim 1 and are allowable by virtue of the dependence from claim 1. Moreover, claims 7 and 8 include all of the limitations of claim 5 and are allowable by virtue of the dependence from claim 5.

The rejection of claims 2 and 6 under 35 U.S.C. § 103(a) as being unpatentable over Mochizuki in view of Meggs et al. is respectfully traversed and reconsideration is requested.

Claims 2 and 6 include all of the limitations of claims 1 and 5, respectively, as discussed above, and Mochizuki fails to teach or suggest at least these features of independent claims 1 and 5 as recited above. Similarly, Meggs et al. fails to cure the deficiencies of Mochizuki. Accordingly, Applicant respectfully submits that the Examiner has not established a *prima facie* case of obviousness regarding claims 2 and 6 in view of claims 1 and 5, as above.

The rejection of claims 1 and 5 under 35 U.S.C. § 103(a) as being unpatentable over Tokunaga in view of the related art shown in Figures 1 and 2 is respectfully traversed and reconsideration is requested.

Claim 1 is allowable over the cited references in that claim 1 recites a combination of elements including, for example, “A backlight unit in a field sequence liquid crystal display including a reflection plate, ...a diffusion plate, ...wherein a plurality of lamps are arranged such that LED chips realizing R, G, and B colors are built in the respective lamps.” The cited references including Tokunaga or the related art shown in Figures 1 and 2, either singly or in combination, do not teach or suggest at least these features of the claimed invention. Accordingly, Applicant respectfully submits that claim 1 and claims 2-4, 11, and 12, which depend from claim 1, are allowable over the cited references.

Claim 5 is allowable over the cited references in that claim 5 recites a combination of elements including, for example, “A backlight unit in a field sequence liquid crystal display including a reflection plate, ...a diffusion plate, ...wherein a plurality of unit chips are arranged such that LED chips realizing R, G, and B colors are built in the respective unit chips.” The cited references including Tokunaga or the related art shown in Figures 1 and 2,

either singly or in combination, do not teach or suggest at least these features of the claimed invention. Accordingly, Applicant respectfully submits that claim 5 and claims 6-8, 13 and 14, which depend from claim 5, are allowable over the cited references.

The Examiner cites Tokunaga as disclosing “a liquid crystal display (3) including a light-guide plate (1), a reflection plate (1a), the backlight unit using LED as a backlight lamp ... wherein a plurality of lamps are arranged such that LED chips realizing R, G, and B colors are built in the respective lamps (claim 1 of Tokunaga & applicant’s [related art shown in] figure 2).”

Applicant respectfully submits, however, Tokunaga fails to teach or even suggest “wherein a plurality of lamps are arranged such that LED chips realizing R, G, and B colors are built in the respective lamps,” as asserted by the Examiner. For example, claim 1 of Tokunaga states “...a plurality of light emitting diodes each serving as a light source for supplying a light to said light guide plate, said light emitting diodes being arranged to enable selective illumination of different colored light by said lighting unit...” Accordingly, Applicant respectfully submits neither Tokunaga nor the related art shown in Figure 2, either singly or in combination, teaches or even suggests all the claim elements of the present invention, as required by M.P.E.P. § 2143.03.

The rejection of claims 9 and 10 under 35 U.S.C. § 103(a) as being unpatentable over Stinson is respectfully traversed and reconsideration is requested.

Claim 9 is allowable over the cited references in that claim 9 recites a combination of elements including, for example, “A backlight unit in a field sequence liquid crystal display including a reflection plate, ...a diffusion plate, ...the backlight further comprising... a plurality of lamps arranged alternatively in a plurality of rows; and three LED chips built in each of the lamps, the three LED chips realizing R, G, and B colors respectively.” The cited

references including Stinson, either singly or in combination, do not teach or suggest at least these features of the claimed invention. Accordingly, Applicant respectfully submits that claim 9 and claims 15 and 16, which depend from claim 9, are allowable over the cited references.

Claim 10 is allowable over the cited references in that claim 10 recites a combination of elements including, for example, “A backlight unit in a field sequence liquid crystal display including a reflection plate, ...a diffusion plate, ...the backlight further comprising... a plurality of unit chips arranged alternatively in a plurality of rows; and three LED chips built in each of the unit chips, the three LED chips realizing R, G, and B colors respectively.” The cited references including Stinson, either singly or in combination, do not teach or suggest at least these features of the claimed invention. Accordingly, Applicant respectfully submits that claim 10 and claims 17 and 18, which depend from claim 10, are allowable over the cited references.

The Examiner cites Stinson as disclosing “three LED chips built in each of the lamps [or chips], the three LED chips realizing R, G, and B colors... wherein the lamp [or unit chips] are turn on/off according to a sequence of R chip, a G chip, and a B chip in each of the rows (figure 3; column 3, lines 10-30).” The Examiner further states “Stinson discloses the claimed invention except a plurality of lamps.”

Applicant respectfully submits, however, Stinson does not disclose “three LED chips built in each of the lamps [or chips], the three LED chips realizing R, G, and B colors... wherein the lamp [or unit chips] are turn on/off according to a sequence of R chip, a G chip, and a B chip in each of the rows,” as asserted by the Examiner. For example, at column 3, lines 10-30, Stinson states

“...reflector cup 18 into which one end of leads 20, 21 and 22 are attached while their opposite ends are attached to the anodes of the light dies.

As shown in FIGS. 3 and 4, each light die 7, 8 and 9 includes an anode 19 and a cathode 29 that is soldered on and within the cup 18. Therefore, in this manner, it can be seen that the cathode lead 13 is coupled in common with the cathodes of a plurality of light die cathodes. With respect to composition, one light die, such as 7 representing red, may be composed of a composition consisting of deep red AlGaAs (Aluminum Gallium Arsenide). Light die 8 may represent green and be composed of Gallium Phosphide on Gallium Phosphide (GaP). The remaining light die 9 is representative of blue and is composed of Silicon Carbide. Preferably, the connecting wires 20-22 inclusive are approximately 1 mil. in thickness and each is composed of gold wire. The cathode lead including reflective cup and anode leads are soldered steel, silver plated or the like.

Referring now in detail to FIGS. 3 and 4, it can be seen that the reflector cup 18 includes three mounting...”

Accordingly, Applicant respectfully submits Stinson fails to teach or suggest “three LED chips built in each of the lamps [or chips], the three LED chips realizing R, G, and B colors... wherein the lamp [or unit chips] are turn on/off according to a sequence of R chip, a G chip, and a B chip in each of the rows,” as asserted by the Examiner. Moreover, and assuming *arguendo* that Stinson did disclose what is asserted by the Examiner, Applicant respectfully submits Stinson is completely silent at least to the aforementioned combination of claimed elements.

Applicant believes the application is in condition for allowance and early, favorable action is respectfully solicited. Should the Examiner deem that a telephone conference would further the prosecution of this application, the Examiner is invited to call the undersigned attorney at (202) 496-7500.

Application No.: 09/893,558  
Group Art Unit: 2875

Docket No.: 8733.461.00  
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If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. § 1.136. Please credit any overpayment to deposit Account No. 50-0911.

Respectfully submitted,

MCKENNA LONG & ALDRIDGE, LLP

Date: November 5, 2003

By



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